

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1 - 29. (Canceled)

30. (Withdrawn - Previously Presented) A support arrangement, comprising:
a vessel in the form of a core barrel of a high temperature gas cooled reactor which is housed within a reactor pressure vessel, the core barrel being elongate in shape and having an axis which extends vertically;

a single vertical support for supporting the weight of the core barrel, the vertical support including upper and lower support members which are connected respectively to the core barrel and the reactor pressure vessel between which vertical loads are transmitted, the upper and lower support members being centrally positioned about the axis and displaceable relative to one another, the upper and lower support members defining respectively downwardly and upwardly disposed contact surfaces through which the vertical loads are transmitted; and

lateral support means configured to provide lateral support to the core barrel, the lateral support means including a plurality of circumferentially spaced upper lateral supports configured to provide lateral support to the core barrel at or towards an upper end thereof, each of which includes a set of inner and outer lateral support members connected to the core barrel at or towards the upper end thereof and the reactor pressure vessel, respectively, and a roller element sandwiched between the inner and

outer lateral support members, the roller element including at least one gear wheel having teeth, and at least one of the inner and outer upper lateral support members being provided with teeth which are complementary to the teeth on the gear wheel so the displacement between the roller and complementary bearing surfaces of the inner and outer upper lateral support members is by rolling.

31. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 30, wherein at least one of the downwardly and upwardly disposed contact surfaces is curved.

32. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 31, wherein the downwardly and upwardly disposed contact surfaces are curved.

33. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 32, wherein the upper support member defines a concave contact surface, the lower support member defining an oppositely disposed convex contact surface.

34. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 33, wherein a radius of curvature of the convex contact surface is smaller than a radius of curvature of the concave contact surface.

35. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 30, wherein the vertical support includes an intermediate member interposed between the upper and lower support members.

36. (Withdrawn - Previously Presented) A support member as claimed in claim 35, wherein the intermediate member defines upper and lower contact surfaces which cooperate, respectively, with complementary contact surfaces of the upper and lower support members.

37. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 36 wherein the contact surfaces of the intermediate member are convex with the complementary contact surfaces of the upper and lower support members being concave.

38. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 37, wherein each convex contact surface has a radius of curvature which is smaller than a radius of curvature of the complementary concave contact surface.

39. (Canceled)

40. (Canceled)

41. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 30, wherein the bearing surfaces of the inner and outer upper lateral support members are inclined.

42. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 30, wherein at least one of the inner and outer upper lateral support members of each set of inner and outer lateral support members is mounted on a resiliently deformable support.

43. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 42, wherein each outer upper lateral support member is mounted on a resiliently deformable support, and the resiliently deformable support is mounted on an upper support ring secured to the reactor pressure vessel.

44. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 43, wherein the resiliently deformable support includes a pair of support posts connected to the upper support ring at spaced apart positions and an elastically deformable guide beam which extends between the support posts and on which the outer upper lateral support member is mounted.

45. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 44, wherein the position of the guide beam is adjustable so as to permit the relative positions of the inner and outer upper lateral support members to be adjusted.

46. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 30, wherein the lateral support means includes a plurality of circumferentially spaced lower lateral supports positioned to provide lateral support to the core barrel adjacent to a lower end thereof.

47. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 46, wherein each lower lateral support includes an elastically deformable locating element extending radially between inner and outer receiving formations to transmit lateral loads between the core barrel and the reactor pressure vessel.

48. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 47, wherein the inner receiving formations are provided on the upper support member and the outer receiving formations are protrusions which protrude radially inwardly from a lower support ring secured to the reactor pressure vessel.

49. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 30, further comprising auxiliary support means for providing support to the core barrel within the reactor pressure vessel when subjected to loads in excess of normal operational loads.

50. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 49, wherein the upper support member includes a central member which extends

downwardly from the bottom of the core barrel and a plurality of angularly spaced support beams connected to the bottom of the core barrel and to the central member and extending radially outwardly from the central member, the auxiliary support means including a lower auxiliary support including a plurality of circumferentially spaced radially inwardly facing slots in which radially outer ends of the support beams are receivable with clearance.

51. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 50, wherein the slots are defined on a radially inner surface of a lower support ring secured to the reactor pressure vessel.

52. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 49, wherein the upper support member includes a central member which extends downwardly from a bottom of the core barrel and a plurality of angularly spaced support beams connected to the bottom of the core barrel and to the central member and extending radially outwardly from the central member to an annular skirt which depends from the core barrel, the auxiliary support means including a lower auxiliary support which includes a plurality of circumferentially spaced protrusions which protrude radially inwardly from a lower support ring secured to the reactor pressure vessel and which are received with clearance in complementary slots in the skirt.

53. (Withdrawn - Previously Presented) A support arrangement as claimed in claim 49, wherein the auxiliary support means includes an upper auxiliary support

comprising a plurality of circumferentially spaced ribs connected to and protruding outwardly from the core barrel and complementary slots provided in and opening out of a radially inner surface of the upper support ring within which slots end portions of the ribs are receivable with clearance.

54. (Withdrawn - Previously Presented) A method of supporting a vessel in the form of a core barrel of a high temperature gas cooled nuclear reactor which is housed within a reactor pressure vessel, the core barrel being elongate in shape and having an axis which extends vertically, the method comprising:

transmitting the weight of the core barrel and its contents to the reactor pressure vessel through a single vertical support having upper and lower support members connected respectively to the core barrel and to the reactor pressure vessel between which the weight is transmitted, the upper and lower support members being centrally positioned about the axis and displaceable relative to one another and defining respectively downwardly and upwardly disposed contact surfaces through which the weight is transmitted; and

transmitting lateral loads between the core barrel and the reactor pressure vessel through a lateral support which is positioned at or adjacent an upper end of the core barrel and which includes a plurality of circumferentially spaced upper lateral supports each of which includes a set of inner and outer lateral support members connected to the core barrel at or towards the upper end thereof and the reactor pressure vessel, respectively, and a roller element sandwiched between the inner and outer upper lateral support members, the roller element including at least one gear wheel having teeth, and

at least one of the inner and outer upper lateral support members being provided with teeth which are complementary to the teeth on the gear wheel so the displacement between the roller and complementary bearing surfaces of the inner and outer upper lateral support members is by rolling.

55. (Currently Amended) A support arrangement comprising:

a vessel in the form of a core barrel of a high temperature gas cooled reactor which is housed within a reactor pressure vessel, the core barrel including a circular cylindrical side wall ~~being elongate in shape and~~ having an axis which extends vertically, the core barrel further including a top and a bottom;

a single vertical support for supporting the weight of the core barrel, the vertical support including separate upper and lower support members which are connected respectively to the bottom of the core barrel and the reactor pressure vessel between which vertical loads are transmitted, the upper and lower support members being centrally positioned about the axis and displaceable relative to one another under normal operation of the reactor, the upper and lower support members defining respectively downwardly and upwardly disposed contact surfaces through which the vertical loads are transmitted; and

lateral support means configured to provide lateral support to the core barrel, the lateral support means including a plurality of circumferentially spaced upper lateral supports configured to provide lateral support to the core barrel at or towards the top of the core barrel ~~an upper end thereof~~, each of which includes a set of inner and outer lateral support members connected to the core barrel at or towards the top of the core

barrel upper end thereof and the reactor pressure vessel, respectively, and a roller element having a circular cylindrical body and being sandwiched between oppositely disposed bearing surfaces of the inner and outer lateral support members, wherein the bearing surfaces of the inner and outer upper lateral support members face radially outwardly and inwardly, respectively, relative to the axis and are each inclined both upwardly and outwardly relative to the axis of the core barrel thereby permitting the inner lateral support members to be displaced upwardly and radially outwardly relative to the outer upper lateral support members while maintaining the support surfaces in contact with the roller to compensate for thermal expansion of the core barrel.

56. (Currently Amended) A support arrangement comprising
a vessel in the form of a core barrel of a high temperature gas cooled reactor which is housed within a reactor pressure vessel, the core barrel including a circular, cylindrical side wall being elongate in shape and having an axis which extends vertically, the core barrel further including a top and a bottom;

a single vertical support for supporting the weight of the core barrel, the vertical support including separate upper and lower support members which are connected respectively to the bottom of the core barrel and the reactor pressure vessel between which vertical loads are transmitted, the upper and lower support members being centrally positioned about the axis and displaceable relative to one another under normal operation of the reactor, the upper and lower support members defining respectively downwardly and upwardly disposed contact surfaces through which the vertical loads are transmitted; and

lateral support means configured to provide lateral support to the core barrel, the lateral support means including a plurality of circumferentially spaced upper lateral supports configured to provide lateral support to the core barrel at or towards the top of the core barrel ~~an upper end thereof~~, each of which includes a set of inner and outer lateral support members connected to the core barrel at or towards the top of the core barrel ~~upper end thereof~~ and the reactor pressure vessel, respectively, each outer upper lateral support member being mounted on a support structure within the pressure vessel, said support structure configured to deflect from an original configuration upon the application of a force and return to the original configuration upon removal of the force, the support structure including a pair of support posts connected to an upper support ring secured to the reactor pressure vessel at spaced apart positions and a guide beam configured to elastically deform ~~at least one of the inner and outer upper lateral support members of each set of inner and outer lateral support members being mounted on a resiliently deformable support.~~

57. (Canceled)